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X.—*A List of the Batrachians and Reptiles collected by Dr. W. J. Ansorge in Angola, with Descriptions of new Species.* By G. A. Boulenger, F.R.S.

[Plate IV.]

The collection made in 1903–1905 by Dr. Ansorge has considerably added to our knowledge of the Batrachians and Reptiles of Angola, the study of which has been pursued for so many years by Professor Barboza du Bocage. Travelling under somewhat unfavourable conditions for the preservation of specimens in spirit, Dr. Ansorge has been so fortunate as to discover as many as four new species. As a contribution to the knowledge of the exact distribution, a full list of the species represented in the collection is here given.

Dr. Ansorge has supplied me with the following notes on some of the localities visited by him:—

Ambaca.—A station of the Loanda to Lucalla railway. Was visited by Livingstone in 1854, and is mentioned by him. Is now a very insignificant place, consisting of some official quarters and half a dozen small shops. April–May 1903.

Bange Ngola.—The Portuguese were erecting a fort here when I visited it (end of 1903). It is named, as usual with African natives, after the important chief who lives here. In maps the whole of this north-eastern part of the Loanda province is called the "Jinga country,"

ruled by a number of petty native chiefs apparently independent of each other.

Bango.—The village of another petty chief in the Jinga country. End of 1903.

Bihé.—A district in the north-east of the occupied portion of the Benguella province; roughly only the eastern half of the Benguella province is only nominally Portuguese. End of 1904.

Bingondo.—A locality in the northern part of Bihé. The country is wooded, interspersed with large open glades, and well populated. October 1904.

Canhoca.—An important station on the Loanda to Lucalla railway. Nov. 1903–Feb. 1904.

Duque de Bragança.—Some hundreds of years ago this was an important Portuguese fort, now it is an insignificant military station with a dozen shops. It lies on the south side of the Lucalla River. End of 1903.

Fort Don Carlos.—The most northern fort of the Loanda province, and in process of erection when I visited it. It lies at the junction of the Cambo and Cuango rivers. End of 1903.

Golungo Alto.—A rich agricultural district, with a town of the same name, visited by Livingstone in 1854. Miles and miles of coffee-plantations are going to waste. Jan. 1904.

Marimba.—Just conquered by the Portuguese from rebellious Jingos when I visited it towards the end of 1903. A fort was being built. Near here is a small lake which I named "Sarmento," where I caught the new Cyprinodontid fish named *Haplochilus macrurus* (Blgr. Ann. & Mag. Nat. Hist. (7) xiv. 1904, p. 19).

Pungo Andongo.—A famous spot for hundreds of years, known also as the "pedras nigras" or "black rocks," to which prisoners were transported from Lisbon. Similar to our "Botany Bay" as an exile for prisoners. It consists of quaint and curious gigantic rocks, hundreds of feet high, rising suddenly out of the level plain. It is still important, owing to the sugar-plantations in the plain. The village of the same name consists of official quarters, a few shops, and an American Mission. June and July 1903.

Quilenges.—A district, not far from the ocean, in the south-western corner of Benguella province. The ruins of an old fort of the same name still serves as the official quarters of the officer in charge of the district. It is a

basin-like depression at the western foot of a lofty chain of hills. January and February 1905.

Tembo Aluma.—A native village about two hours on foot from Fort Don Carlos. End of 1903.

BATRACHIA.

Ecaudata.

1. *Xenopus lævis*, Daud.

Pungo Andongo.

I have carefully compared the specimens brought home by Dr. Ansorge with one from Benguella received from Prof. Barboza du Bocage and with others from various parts of South Africa, with the result that I cannot regard *X. Petersii*, Bocage, as more than a small race of *X. lævis*.

2. *Bufo regularis*, Reuss.

Duque de Bragança, Pungo Andongo, Locomi, Canhoca, Marimba, between Benguella and Bihé.

3. *Hemisus marmoratum*, Peters.

Semba Acendu.

4. *Rana ornatissima*, Bocage.

Bingondo in Bihé. Caught in the forest in October.

In the breeding male a brown callous pad is present on the inner side of the forearm at the base of the second and third fingers; similar callosities cover the upper surface of the three inner fingers. In all other characters this fine frog agrees with *R. Budgetti* as described by me in 1903, and I must therefore now regard the Gambia specimens as representing merely a colour-variety of the species previously described by Barboza du Bocage. *R. moeruensis*, Blgr., is also very closely allied to *R. ornatissima*, but differs in the inner finger extending beyond the second.

5. *Rana mascareniensis*, D. & B.

Between Benguella and Bihé.

6. *Rana Ansorgii*, sp. n. (Pl. IV. fig. 1.)

Vomerine teeth in two short transverse series close to the inner front edges of the choanæ. Head once and a half

as long as broad; snout acutely pointed, longer than the diameter of the orbit, very strongly projecting beyond the mouth; canthus rostralis feebly marked; loreal region slightly concave; nostril midway between the eye and the end of the snout; interorbital space narrower than the upper eyelid; tympanum distinct, three fourths the diameter of the eye. Fingers moderate, obtusely pointed, first not extending quite as far as second; toes very long and slender, barely half webbed; subarticular tubercles moderate; a small, oval, inner metatarsal tubercle. The tibio-tarsal articulation reaches far beyond the tip of the snout. Foot nearly two thirds the length of head and body, tibia rather more than two thirds. Back with eight glandular longitudinal folds, outer strongest; a glandular fold from beneath the eye to the shoulder. Greyish olive above, with black spots; limbs with regular blackish cross-bars; a black band on the side of the head, passing through the eye and covering the temple; a vertebral stripe, the outer glandular fold, and a streak on the upper lip, from the end of the snout to the shoulder, yellowish white; lower parts white, edge of lower jaw and side of throat black.

From snout to vent 40 mm.

A single female specimen from between Benguella and Bihé.

This new species is intermediate between *R. mascareniensis* and *R. stenocephala*, Blgr.

7. *Rana angolensis*, Bocage.

Pungo Andongo.

8. *Rana oxyrhynchus*, A. Smith.

Duque de Bragança, Cuanza R.

9. *Phrynobatrachus natalensis*, A. Smith.

Bange Ngola.

10. *Arthroleptis xenochirus*, sp. n. (Pl. IV. figs. 2, 2 *a*.)

Head moderate, as long as broad; snout obtusely pointed, projecting beyond the mouth; nostril a little nearer the end of the snout than the eye; interorbital space as broad as the upper eyelid; tympanum moderately distinct, two thirds the diameter of the eye. Third finger extremely long, three times the length of the second; toes free; tips of fingers and toes very slightly swollen; subarticular tubercles strong; a small, oval, inner metatarsal tubercle. The tibio-tarsal

articulation reaches the tympanum. Skin smooth; sides and lower belly granulate; a strong fold across the chest. Greyish brown above, with a vase-shaped dark marking from between the eyes to the sacral region; some dark spots on the temple and above the shoulder; rather irregular dark brown bars across the fore limb and the tibia; lower parts white. Male with a subgular vocal sac.

From snout to vent 19 mm.

A single male specimen from Marimba.

The longer third finger distinguishes this species from *A. macrodactylus*, Blgr.

11. *Arthroleptis parvulus*, sp. n. (Pl. IV. figs. 3–3 *b*.)

Head moderate, as long as broad; snout rounded, projecting beyond the mouth, shorter than the diameter of the orbit; nostril a little nearer the end of the snout than the eye; interorbital space a little broader than the upper eyelid; tympanum hidden. Fingers moderate, third about once and a half as long as second; toes one fourth webbed; tips of fingers and toes very slightly swollen; subarticular tubercles strong; a tarsal and two metatarsal tubercles, small and round. The tibio-tarsal articulation reaches the eye. Skin smooth or with small warts on the back. Greyish brown above, with blackish spots and a triangular blackish marking between the eyes, with or without a light vertebral line, or with a broad whitish area, edged with black, covering the top of the head and the back; limbs with dark cross-bars; a white, dark-edged streak along the back of the thighs; lower parts white, with or without brown spots on the breast.

From snout to vent 13 mm.

Four specimens from Bange Ngola.

Closely allied to *A. dispar*, Peters. Distinguished by the shorter snout, the more distinct web between the toes, and the less distinct digital expansions.

12. *Rappia marmorata*, Rapp.

Tembo Aluma, Bango, Bange Ngola, Locomi, Canhoca, Golungo Alto, between Benguella and Bihé.

13. *Rappia cinnamomeiventris*, Bocage.

Canhoca.

This species is, perhaps, not separable from *R. picturata*, Peters (*olivacea*, Peters).

14. *Rappia Bocagii*, Stdr.
Canhoca.

15. *Rappia cinctiventris*, Cope.
Bange Ngola, Nana Meya.

16. *Rappia microps*, Gthr.
Fort Don Carlos, Marimba, Bange Ngola.

17. *Rappia nasuta*, Gthr.
Bange Ngola, Canhoca.

18. *Hylambates Anchietæ*, Bocage.
Between Benguella and Bihé.

REPTILIA.

Lacertilia.

1. *Hemidactylus mabuia*, Mor.
Pungo Andongo.

2. *Pachydactylus ocellatus*, Cuv.
Cuanza.

3. *Agama armata*, Peters.
Cuanza, between Benguella and Bihé, between Bihé and Quilenges.

4. *Agama planiceps*, Peters.
Pungo Andongo, Ambaca, between Benguella and Bihé, between Bihé and Quilenges.

5. *Agama atricollis*, A. Smith.
Duque de Bragança, Bange Ngola, Pungo Andongo, Cuanza R.

6. *Varanus niloticus*, L.
Cunga R.

7. *Ichnotropis capensis*, A. Smith.
Duque de Bragança, Bange Ngola, between Benguella and Bihé.

8. *Eremias lugubris*, A. Smith.

Cuanza R.

9. *Gerrhosaurus validus*, A. Smith.

Between Bihé and Quilenges.

The single specimen measures 2500 mm. from snout to vent.

10. *Gerrhosaurus nigrolineatus*, Hallow.

Duque de Bragança, Pungo Andongo, between Bihé and Quilenges.

The frontal shield varies much in form and the frontonasal is sometimes in contact with the rostral, but the præfrontals constantly form an extensive suture on the median line. Femoral pores 14 to 18 on each side.

11. *Mabuia quinquetæniata*, Licht.

Pungo Andongo.

12. *Mabuia Bayonii*, Bocage.

Duque de Bragança, Ambaca.

13. *Mabuia varia*, Peters.

Pungo Andongo, between Benguella and Bihé.

14. *Mabuia striata*, Peters.

Between Benguella and Bihé.

15. *Ablepharus Wahlbergii*, A. Smith.

Between Benguella and Bihé.

16. *Sepsina angolensis*, Bocage.

Pungo Andongo, between Benguella and Bihé.

17. *Feylinia Currori*, Gray.

Golungo Alto.

Rhiptoglossa.

18. *Chamæleon gracilis*, Hallow.

Duque de Bragança, Pungo Andongo, Canhoca, Marimba.

19. *Chamæleon quilensis*, Bocage.
Cuanza R.

20. *Chamæleon dilepis*, Leach.
Between Bihé and Quilenges.

OPHIDIA.

21. *Typhlops punctatus*, Leach.
Golungo Alto.

22. *Glauconia scutifrons*, Peters.
Golungo Alto.

23. *Tropidonotus olivaceus*, Peters.
Pungo Andongo.

24. *Helicops bicolor*, Gthr.
Duque de Bragança.

25. *Boodon lineatus*, D. & B.
Pungo Andongo.

26. *Lycophidium capense*, A. Smith.
Between Benguella and Bihé.

27. *Chlorophis heterolepidotus*, Gthr.
Duque de Bragança.

28. *Chlorophis irregularis*, Leach.
Pungo Andongo.

29. *Chlorophis ornatus*, Bocage.
Between Benguella and Bihé.

30. *Dasypeltis scabra*, L.
Pungo Andongo.
The specimen (a female), which belongs to the var. *palmarum*, Leach, has 27 scales across the body, 244 ventrals, and 63 caudals.

31. *Leptodira hotamlœia*, Laur.
Canhoca.

32. *Rhamphiophis acutus*, Gthr.

Between Benguella and Bihé.

Upper portion of rostral shield considerably shorter than its distance from the frontal. Ventrals 168–183, caudals 53–59.

33. *Psammophis sibilans*, L.

Duque de Bragança, Pungo Andongo.

34. *Psammophis Ansorgii*, sp. n. (Pl. IV. fig. 4.)

Snout but slightly longer than the eye. Rostral a little broader than deep, just visible from above; nostril between two or three shields; internasals two thirds the length of the præfrontals; frontal twice as long as broad, longer than its distance from the end of the snout, as long as the parietals; loreal barely once and a half as long as deep; one præocular, in contact with the frontal; two postoculars; temporals 2+2; seven upper labials, third and fourth entering the eye; four lower labials in contact with the anterior chin-shields, which are shorter than the posterior. Scales in 15 rows. Ventrals 153; anal divided; subcaudals 76. Grey above, with a very indistinct streak of rusty along each side of the back; no markings on the upper surface of the head; præ- and postoculars yellowish; a white black-edged streak on the upper lip, the upper outline crossing the rostral, the lower half of which is white; lower parts uniform white.

Total length 700 mm.; tail 165.

A single male specimen from between Benguella and Bihé.

This very distinct species is most nearly related to the South-African *P. crucifer*, Daud., from which it differs in the larger eye, the shorter snout, and the coloration.

35. *Dispholidus typus*, A. Smith.

Between Benguella and Bihé.

36. *Xenocalamus Mechovii*, Peters.

Between Benguella and Bihé.

A single male specimen, measuring 395 mm., tail 30. Ventrals 217, caudals 25. The two postoculars confluent into one. Black above, with white spots forming more or less regular cross-bars; upper lip, two outer rows of scales, and lower parts white, each ventral and subcaudal shield with crowded black dots forming cross-bars.

37. *Miodon collaris*, Peters.

Golungo Alto.
A single female specimen, with 233 ventrals and 17 caudals.

38. *Aparallactus Bocagii*, Blgr.

Between Benguella and Bihé.
A single female specimen, measuring 330 mm., tail 45. Ventrals 175, caudals 35.

39. *Naia melanoleuca*, Hallow.

Pungo Andongo.

40. *Naia nigricollis*, Reinh.

Golungo Alto.

41. *Causus rhombeatus*, Licht.

Pungo Andongo, Canhoca, between Benguella and Bihé.
Some of the specimens from between Benguella and Bihé belong to a colour-variety described by Barboza du Bocage (Herp. d'Angola, p. 146), a pair of light lines running along the back and dividing the large transverse dark dorsal spots. Specimens of this variety, for which I propose the name *bilineatus*, appear to have constantly 17 or 18 rows of scales only. Ventrals 128–144; caudals 23–30.

42. *Bitis Peringueyi*, Blgr.

Between Benguella and Bihé.
A single female specimen of this little-known Viper, measuring 340 mm., tail 37. Scales in 27 rows; ventrals 131, caudals 27. 12 or 14 scales round the eye; two series of scales between the eye and the upper labials, which are 12 in number. Coloration as figured by Bocage (*Vipera heraldica*), but the mid-dorsal region and the lateral round spots are reddish brown.

43. *Atheris squamiger*, Hallow.

Golungo Alto.
A single female specimen, with 17 scales across the body, 171 ventrals, and 53 caudals.

44. *Atractaspis congica*, Peters.

Duque de Bragança and Golungo Alto.
Scales 19–21; ventrals 224–235; caudals 18–22.

EXPLANATION OF PLATE IV.

Fig. 1. *Rana Ansorgii*, p. 107, natural size.
Fig. 2. *Arthroleptis xenochirus*, p. 108, natural size.
Fig. 2 *a*. *Arthroleptis xenochirus*, lower aspect of hand, × 4.
Figs. 3, 3 *a*. *Arthroleptis parvulus*, p. 109, natural size.
Fig. 3 *b*. *Arthroleptis parvulus*, lower aspect of foot, × 4.
Fig. 4. *Psammophis Ansorgii*, p. 113, upper and side views of head and anterior part of body, natural size.

XI.—*On the Internal Parasites of the Tweed Salmon.* By James R. Tosh, M.A., D.Sc., Assistant Professor and Lecturer on Natural History in the University of St. Andrews.

[Plate V.]

Specimens of the parasites mentioned below were collected during the net-fishing season of 1895 at the premises of the Salmon Fishing Company, Berwick-on-Tweed.

The distinctly marine character of the parasitic guests of the salmon is an indication of the nature of its food. Fresh-water parasitic forms are very rare in the salmon, and the fact that they are practically absent in well-grown fishes seems to point to the conclusion that salmon do not feed in the fresh water of a short river like the Tweed except under extraordinary conditions, when a prolonged stay is imposed upon them.

The following is a list of Entozoa observed:—

Ascaris capsularia, *Rud.*
—— acuta, *Müll.*
—— obtusocaudata, *Zed.*
Distoma varicum, *Rud.*
—— ocreatum, *Rud.*
—— Miescheri, *Zschokke.*
Echinorhynchus acus, *Rud.*
—— proteus, *Westrumb.*
Echinorhynchus angustatus, *Rud.*
Bothriocephalus infundibuliformis, *Rud.*
Tetrarhynchus grossus, *Rud.*
—— macrobothrius, *Rud.*
Tetrabothrium minimum. Larva.
—— sp. Larva.
Tænia sp. Larva.

Ascaris capsularia, Rud. Entoz. t. ii. i. p. 179.

This form occurs very plentifully encapsuled on the pyloric cæca and mesenteries. The average length is about 26 mm. It is very active when taken out. The usual infection is from 20 to 50 in each fish.

Ascaris acuta, Müll. Zool. Dan. vol. iii. p. 53.

This is the parasite that occurs most frequently in the